ORDER NO. RD7412-113

51

RF-5310LB

Service Manual

National
RADIO
Panasonic

Original

FM-AM 4-BAND PORTABLE RADIO WITH CASSETTE TAPE RECORDER MODEL RF-5310LB

SPECIFICATIONS

Frequency Range:	FM	87.5~108 MHz
	LW	145~285 kHz (2060~1060m)
	MW	520~1610 kHz (577~186 m)
	SW	5.9~18 MHz (50.8~16.7 m)
Intermediate Frequency:	FM 10.7 MHz AM (LW, MW & SW) 455 kHz	
Sensitivity:	FM 1μV for 50mW Output LW 100μV/m for 50mW Output MW 50μV/m for 50mW Output SW 5μV for 50mW Output	
Power Output:	4.2W Maximum	
Power Source:	AC 115/200/220/240V 50-60 Hz or 9V (Six "D" Size Flashlight Batteries) (National UM-1 or equivalent)	
Power Consumption:	10W (AC Only)	
Speaker:	16 cm ($6\frac{1}{2}$") PM Dynamic Speaker	
Dimensions:	320(Wide) × 235(High) × 102 (Deep) mm ($12\frac{19}{32}$" × $9\frac{1}{4}$" × 4")	
Weight:	3.6 kg. (7 lb. 15 oz.) without batteries	
Impedance:	Speaker .....8Ω Earphone Jack .....8Ω DIN Jack.....100kΩ MIC Jack 10kΩ	

Specifications are subject to change without notice for further improvement.

Matsushita Electric Industrial Co.,Ltd.
MATSUSHITA ELECTRIC TRADING CO., LTD.
P.O. Box 288 Central, Osaka, Japan

National

51

■ TO REMOVE CHASSIS

1. Remove six (6) control knobs from cabinet.
2. Remove battery cover.
3. Remove four (4) cover screws, nos. 1~4, as illustrated in fig. 1.
4. Remove cabinet cover.
5. Pull out socket of lead wires to cabinet cover.
6. Remove eight (8) red chassis screws, nos. 1~8, as illustrated in fig. 2.
7. Push the eject button.
8. Remove triple indicator.
9. Pull out microphone.
10. To remove chassis completely, unsolder lead wires to speaker terminal.
11. To reassemble, reverse the above procedure.

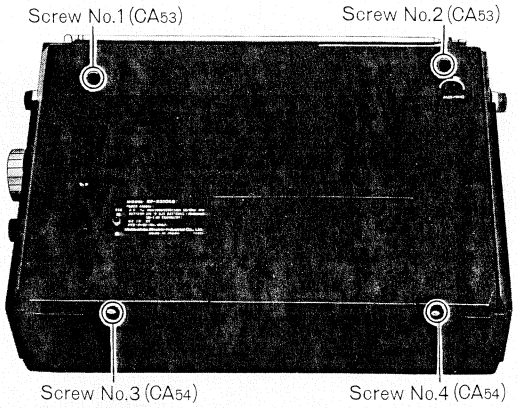


Fig. 1

■ TO REMOVE TAPE DECK

1. Remove chassis from cabinet. (Refer to chassis removal instruction.)
2. Remove three (3) PC board and tape deck screws, nos. 3, 6 & 7, as illustrated in fig. 3.
3. Remove PC board from tape deck.
4. To remove tape deck completely, unsolder lead wires, as illustrated in fig. 4.
5. To reassemble, reverse the above procedure.

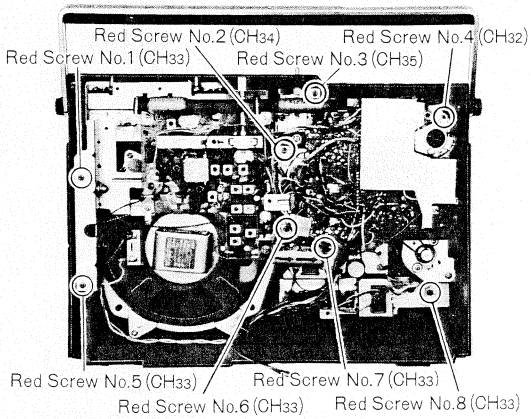

Red Screw No.2 (CH34)
Red Screw No.4 (CH32)
Red Screw No.1 (CH33)
Red Screw No.3 (CH35)
Red Screw No.5 (CH33)
Red Screw No.7 (CH33)
Red Screw No.6 (CH33)
Red Screw No.8 (CH33)

Fig. 2

■ TO REMOVE PC BOARD (RF Circuit)

1. Remove chassis from cabinet.
2. Remove two (2) dial drum and PC board screws, nos. 1 & 2, as illustrated in fig. 5.
3. Remove four (4) PC board screws, nos. 1, 2, 4 & 5, as illustrated in fig. 3.
4. Remove PC board from chassis.
5. To reassemble, reverse the above procedure and read the following notes.

   Notes:

   1. Turn tuning shaft to fully clockwise.
   2. Turn tuning gang shaft to fully clockwise.

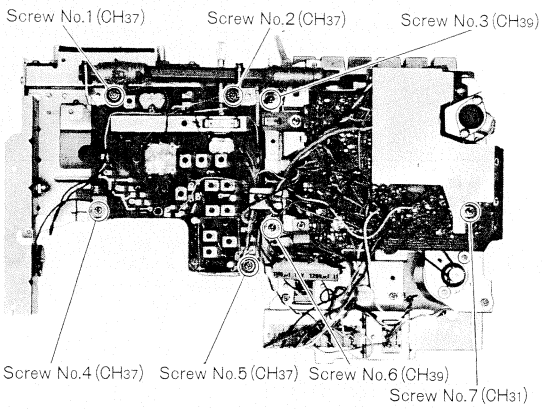


Fig. 3

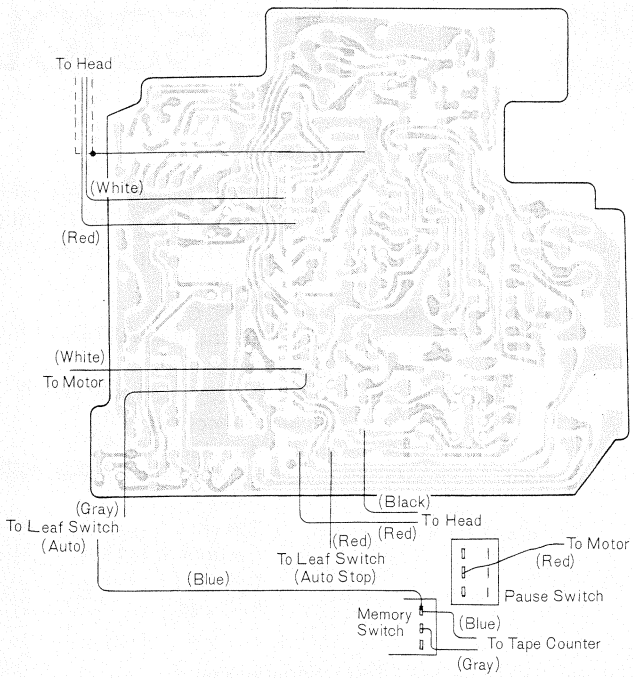


Fig. 4

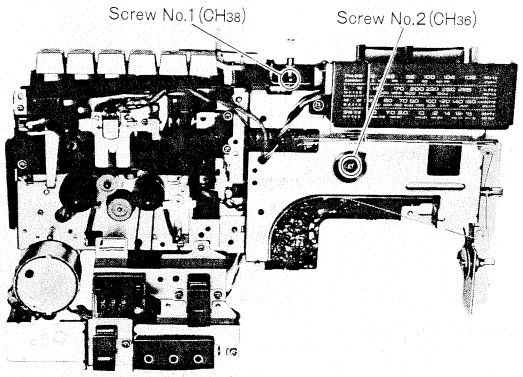


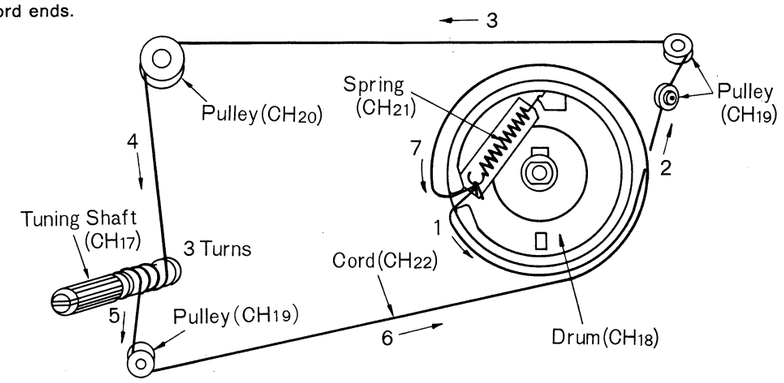
Fig. 5

■ DIAL CORD INSTALLATION GUIDE

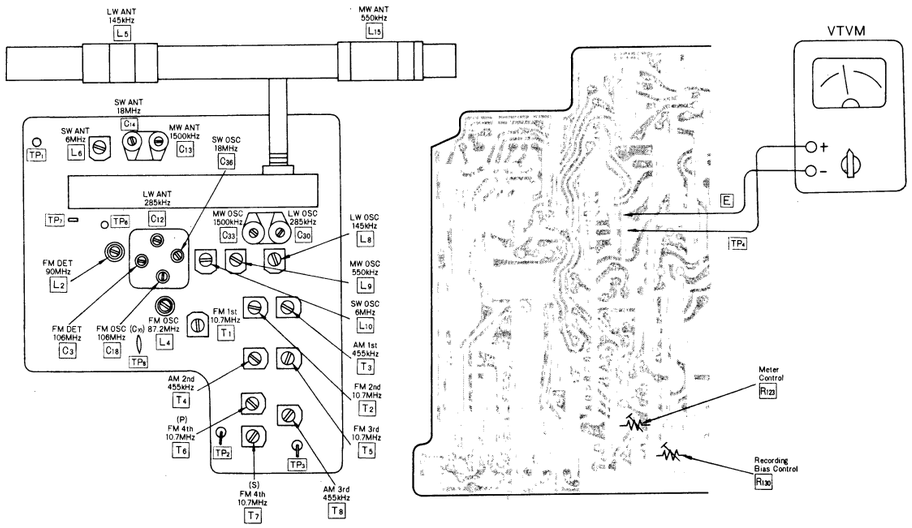
1. Remove PC board (RF Circuit) from chassis.
2. Dial cord length is 80 cm (31½").
3. Set dial drum to fully counter-clockwise.
4. Arrows (1~7) indicate correct order and direction of dial cord installation.
5. Cement dial cord ends.

■ TO MOUNT DIAL POINTER

1. Set tuning gang to maximum capacity.
2. Set dial pointer to start point of dial scale.
3. Attach dial cord to dial pointer.



■ ALIGNMENT POINTS



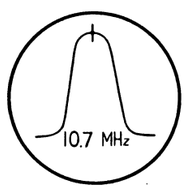


Fig. 6

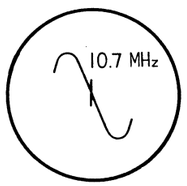


Fig. 7

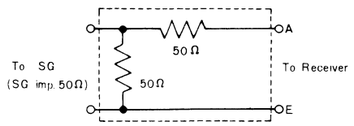
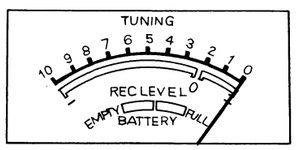


Fig. 8 FM Dummy Antenna

■ BATTERY/TUNING/RECORDING LEVEL METER ADJUSTMENT

1. RADIO RECEIVER SETTING
   - Set tape-sleep-radio selector switch to RADIO ON.
   - Set volume control to minimum.
   - Set power source voltage to 9 volts DC.
2. REMARKS
   - Adjust R_{123} so that the pointer of level meter stays as shown in figure right.



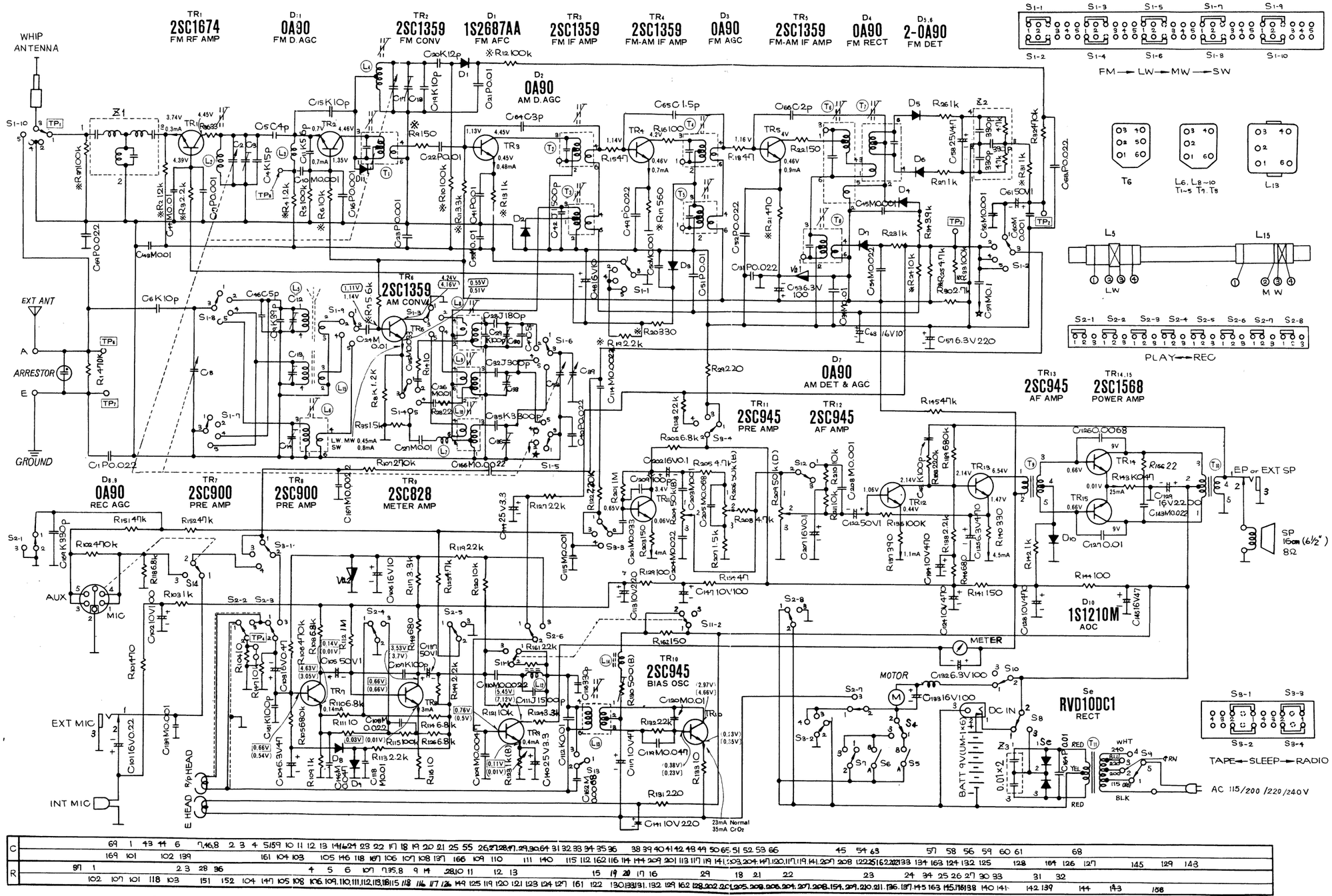
■ ALIGNMENT INSTRUCTIONS

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Notes:
1. Set volume control to maximum.
2. Set bass & treble control to maximum.
3. Set band selector switch to MW, LW, SW or FM.
4. Set AC-BATT selector switch to BATT.
5. Set loudness switch to OFF.
6. Set OSC switch to 1.
7. Set power source voltage to 9 volts DC.
8. Set TAPE-SLEEP-RADIO ON selector switch to RADIO ON or TAPE.
9. Set tape selector switch to NORMAL.
10. Set fine tuning to center.

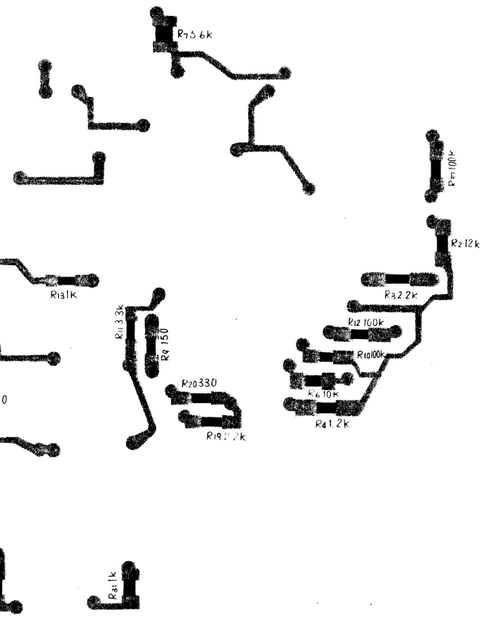
	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING (DISTANCE)	INDICATOR (VTVM or SCOPE)	ADJUSTMENT	REMARKS
	CONNECTIONS	FREQUENCY				
	LW ALIGNMENT					
(1)	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz 30% Mod. with 400 Hz.	Point of non-interference. (on/about 600 kHz)	Output meter across voice coil.	T_3 (1st IFT) T_4 (2nd IFT) T_8 (3rd IFT)	Adjust for maximum output.
(2)	〃	145 kHz	145 kHz	〃	L_8 (OSC Coil) (＊1)L_5 (ANT Coil)	Adjust for maximum output. Adjust L_5 by moving coil bobbin along ferrite core.
(3)	〃	285 kHz	285 kHz	〃	C_{30} (OSC Trimmer) C_{12} (ANT Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).
	MW ALIGNMENT					
(4)	〃	550 kHz	550 kHz	〃	L_9 (OSC Coil) (＊1)L_{15}(ANT Coil)	Adjust for maximum output. Adjust L_{15} by moving coil bobbin along ferrite core.
(5)	〃	1500 kHz	1500 kHz	〃	C_{33} (OSC Trimmer) C_{13} (ANT Trimmer)	Adjust for maximum output. Repeat steps (4)and (5).
	(＊1) Cement antenna bobbin with wax after completing alignment.					
	SW ALIGNMENT					
(6)	Connect to test point TP1 through 10 PF capacitor. Common to chassis.	6 MHz	6 MHz	〃	L_{10} (OSC Coil) L_6 (ANT Coil)	Adjust for maximum output.
(7)	〃	18 MHz	18 MHz	〃	C_{36} (OSC Trimmer) C_{14} (ANT Trimmer)	Adjust for maximum output. Repeat steps (6) and (7).
	FM-IF ALIGNMENT					
(8)	High side thru. 0.001μF to point TP8, Common to chassis.	10.7 MHz (400 kHz SWP.)	Point of non-interference. (on/about 90 MHz).	Connect vert. amp. of scope to point TP2, Common to chassis.	T_1 (FM 1st IFT) T_2 (FM 2nd IFT) T_5 (FM 3rd IFT) T_6 (FM 4th IFT) (Primary)	Adjust for maximum amplitude and proper linearity between ±100 kHz markers. (Refer to fig. 6)
(9)	〃	〃	〃	〃	T_7 (FM 4th IFT) (Secondary)	Adjust T_7 so that 10.7 MHz marker appears at the center. (Refer to fig. 7)
	FM-RF ALIGNMENT					
(10)	Connect to point TP1 through FM dummy antenna. Common to test point TP7. (Refer to fig. 8).	87.2 MHz	Tuning gang fully closed.	Output meter across voice coil.	L_4 (FM OSC Coil)	(＊2)Adjust for maximum output.
(11)	〃	90 MHz	Tune to signal.	〃	L_2 (FM DET Coil)	(＊2)Adjust for maximum output.
(12)	〃	106 MHz	106 MHz (53mm(2⅛"))	〃	C_{18} (FM OSC Trimmer) C_3 (FM DET Trimmer)	(＊2)Adjust for maximum output. Repeat steps (10)~(12).
	(＊2) Three output responses will be present; proper tuning is the center frequency.					
	RECORDING BIAS ALIGNMENT					
	CIRCUIT	VTVM CONNECTION			ADJUSTMENT	REMARKS
(13)	RECORDING BIAS	Connect positive side to test point TP4 and negative side to test point E.			R_{130} (Bias Voltage Control)	Adjust R_{130} for 5.5mV of VTVM reading.

Schematic Diagram – Model RF-5310LB



Notes:

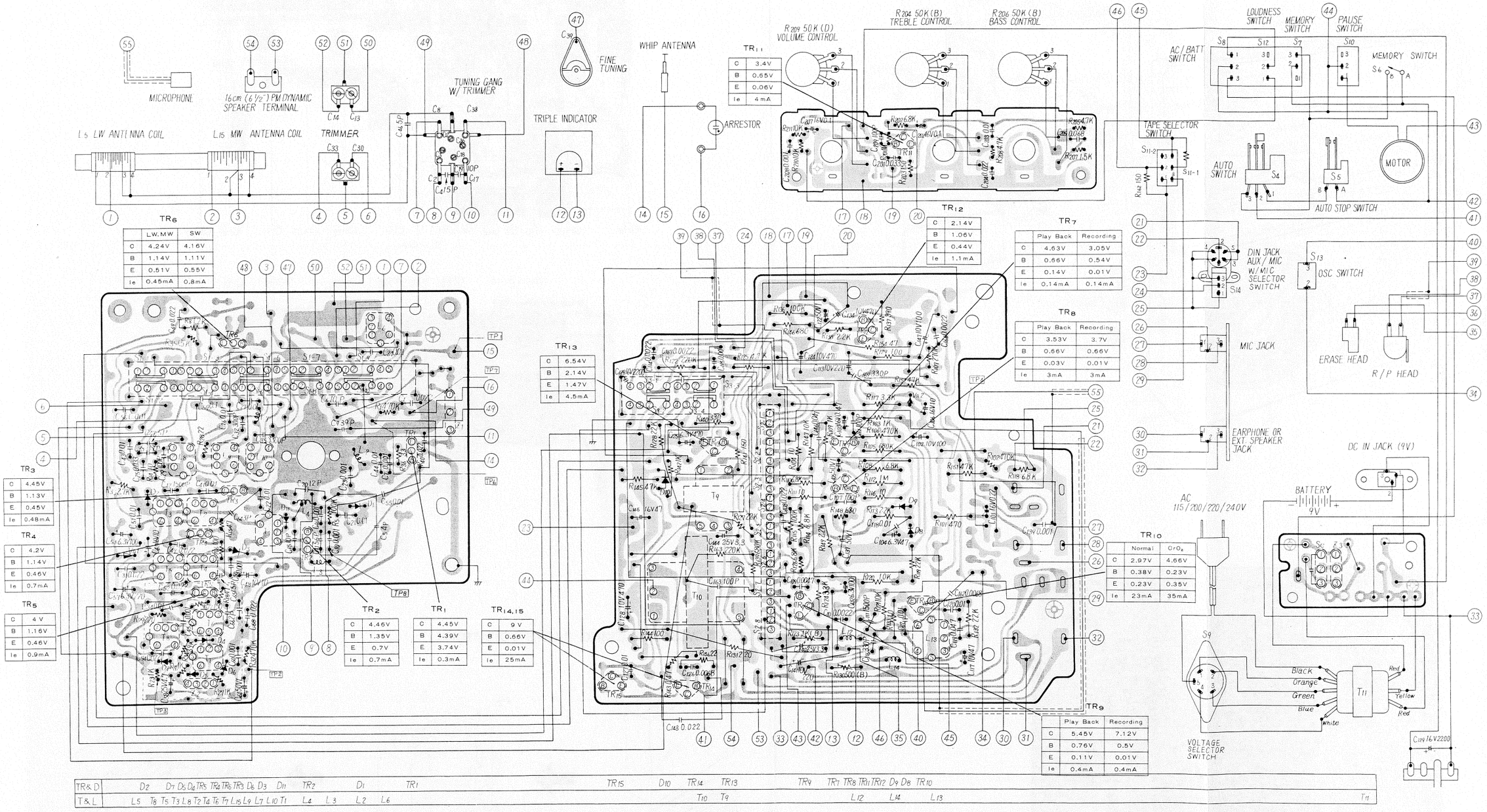
1. S_{1-1}～S_{1-10}: Band selector switch in "FM" position.
2. S_{2-1}～S_{2-8}: Recording-Play selector switch in "Play" position
3. S_{3-1}～S_{3-4}: Tape-Sleep-Radio On selector switch in "RADIO ON" position.
4. S_4: Auto switch in "PLAY" position.
5. S_5: Auto stop switch in "OFF" position.
6. S_6: Memory switch in "OFF" position.
7. S_7: Memory ON-OFF switch in "ON" position.
8. S_8: AC-Battery selector switch in "Battery" position.
9. S_9: Voltage selector switch in "115V" position.
10. S_{10}: Pause switch in "OFF" position.
11. $S_{11-1, 11-2}$: Tape selector switch in "NORMAL" position.
12. S_{12}: Loudness switch in "OFF" position.
13. S_{13}: OSC switch in "1" position.
14. S_{14}: Mic selector switch.
15. DC voltage measurements are taken with circuit tester 10KΩ/V from negative terminal of battery.
    ▭...Play Back position ( )...Recording position
    〈 〉...Normal position [ ]...CrO_2 position
    ⬭...SW position
16. Battery current: No signal..... 40mA
    Maximum output 600mA
17. Printed resistor are shown by ∗ mark.



Printed Resistor Conductive Paint

THIS CIRCUIT SHOWN PRINTED RESISTOR

Circuit Board Wiring View–Model RF-5310LB



TR6	LW.MW	SW
C	4.24V	4.16V
B	1.14V	1.11V
E	0.51V	0.55V
Ie	0.45mA	0.8mA

TR3	
C	4.45V
B	1.13V
E	0.45V
Ie	0.48mA

TR4	
C	4.2V
B	1.14V
E	0.46V
Ie	0.7mA

TR5	
C	4 V
B	1.16V
E	0.46V
Ie	0.9mA

TR2	
C	4.46V
B	1.35V
E	0.7V
Ie	0.7mA

TR1	
C	4.45V
B	4.39V
E	3.74V
Ie	0.3mA

TR14,15	
C	9 V
B	0.66V
E	0.01V
Ie	25mA

TR13	
C	6.54V
B	2.14V
E	1.47V
Ie	4.5mA

TR11	
C	3.4V
B	0.55V
E	0.06V
Ie	4mA

TR12	
C	2.14V
B	1.06V
E	0.44V
Ie	1.1mA

TR7	Play Back	Recording
C	4.63V	3.05V
B	0.66V	0.54V
E	0.14V	0.01V
Ie	0.14mA	0.14mA

TR8	Play Back	Recording
C	3.53V	3.7V
B	0.66V	0.66V
E	0.03V	0.01V
Ie	3mA	3mA

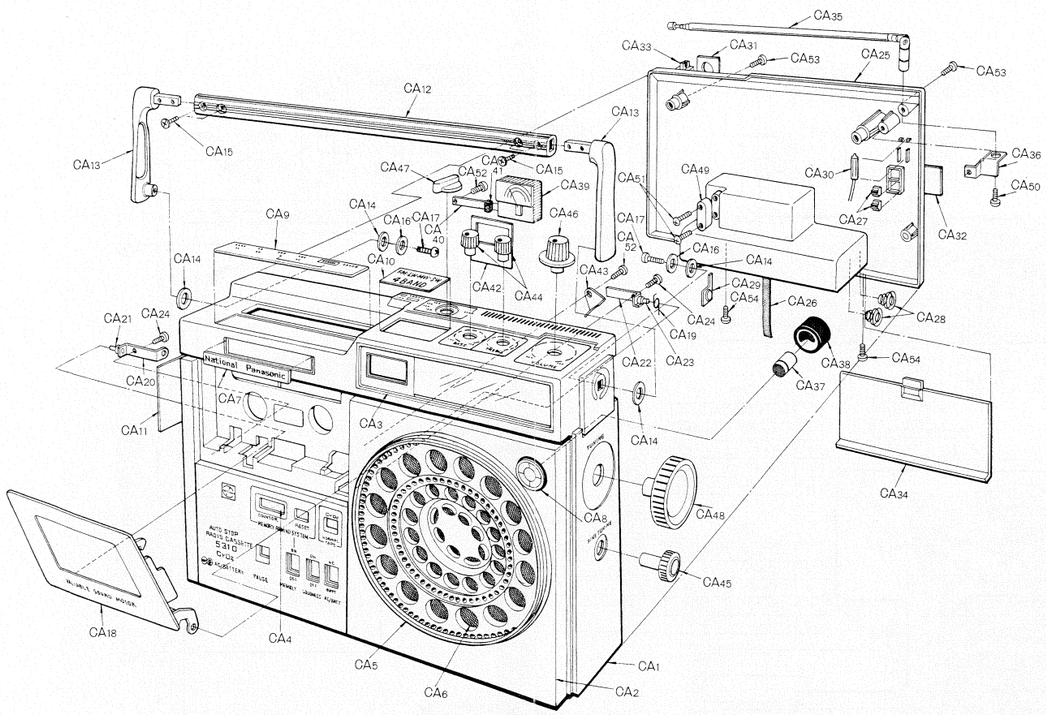
TR10	Normal	CrO_2
C	2.97V	4.66V
B	0.38V	0.23V
E	0.23V	0.35V
Ie	23mA	35mA

TR9	Play Back	Recording
C	5.45V	7.12V
B	0.76V	0.5V
E	0.11V	0.01V
Ie	0.4mA	0.4mA

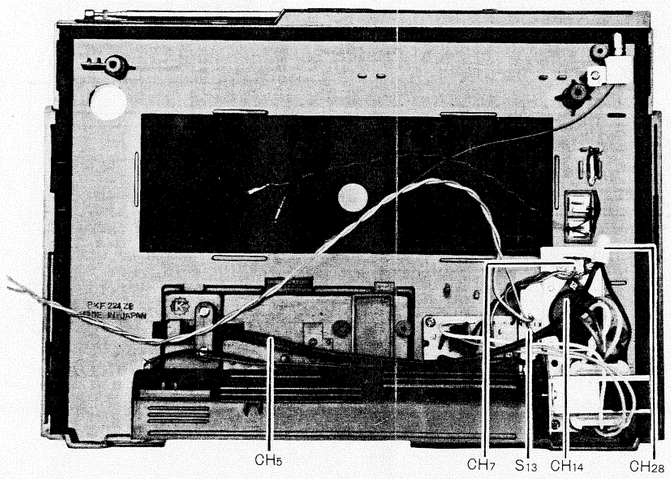
TR&D	D2	D7	D5	D4	TR5	TR4	TR6	TR3	D6	D3	D11	TR2	D1	TR1	TR15	D10	TR14	TR13	TR9	TR7	TR8	TR11	TR12	D9	D8	TR10
T&L	L5	T8	T5	T3	L8	T2	T4	T6	T7	L15	L9	L7	L10	T1	L4	L3	L2	L6	T10	T9	L12	L14	L13	T11			

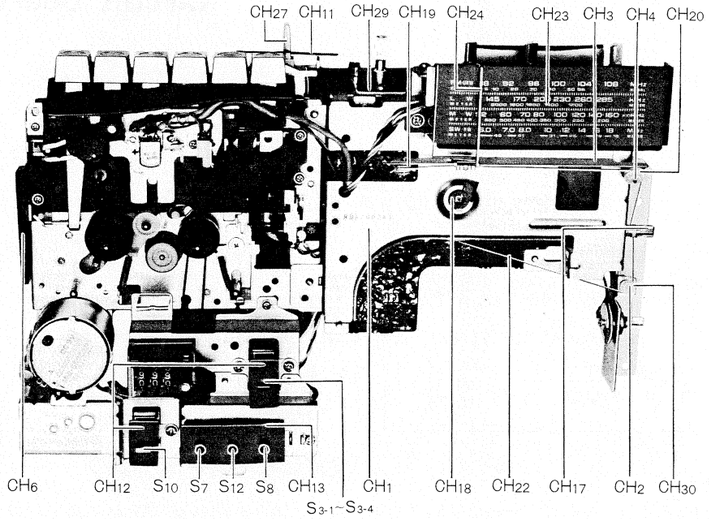
Earth Line

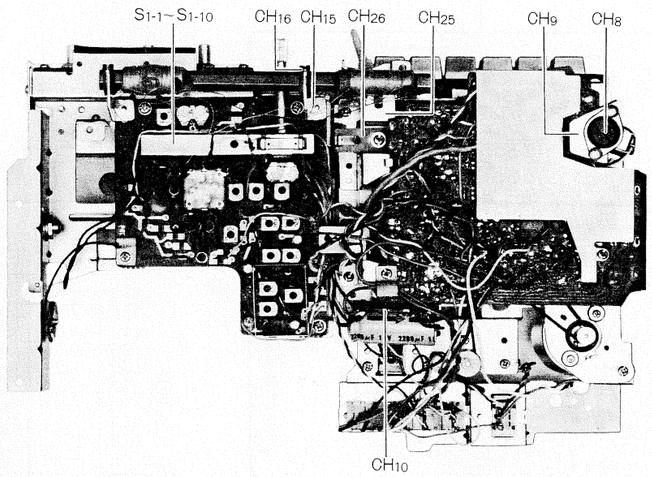
■ CABINET PARTS LOCATIONS



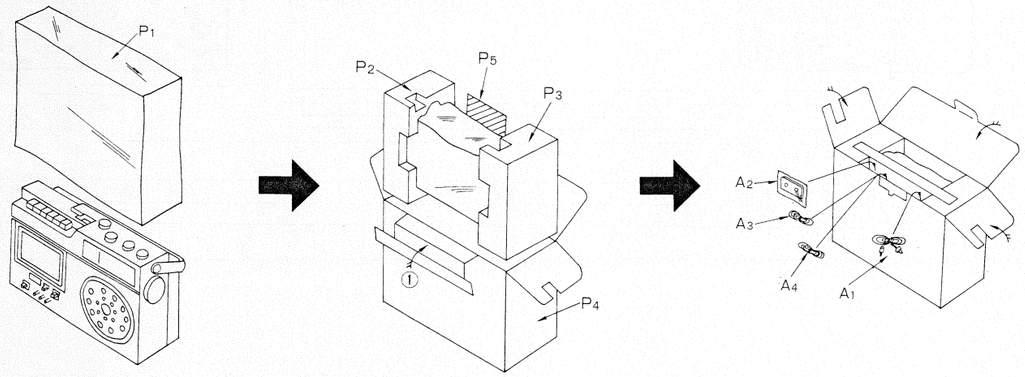
■ CHASSIS PARTS LOCATIONS



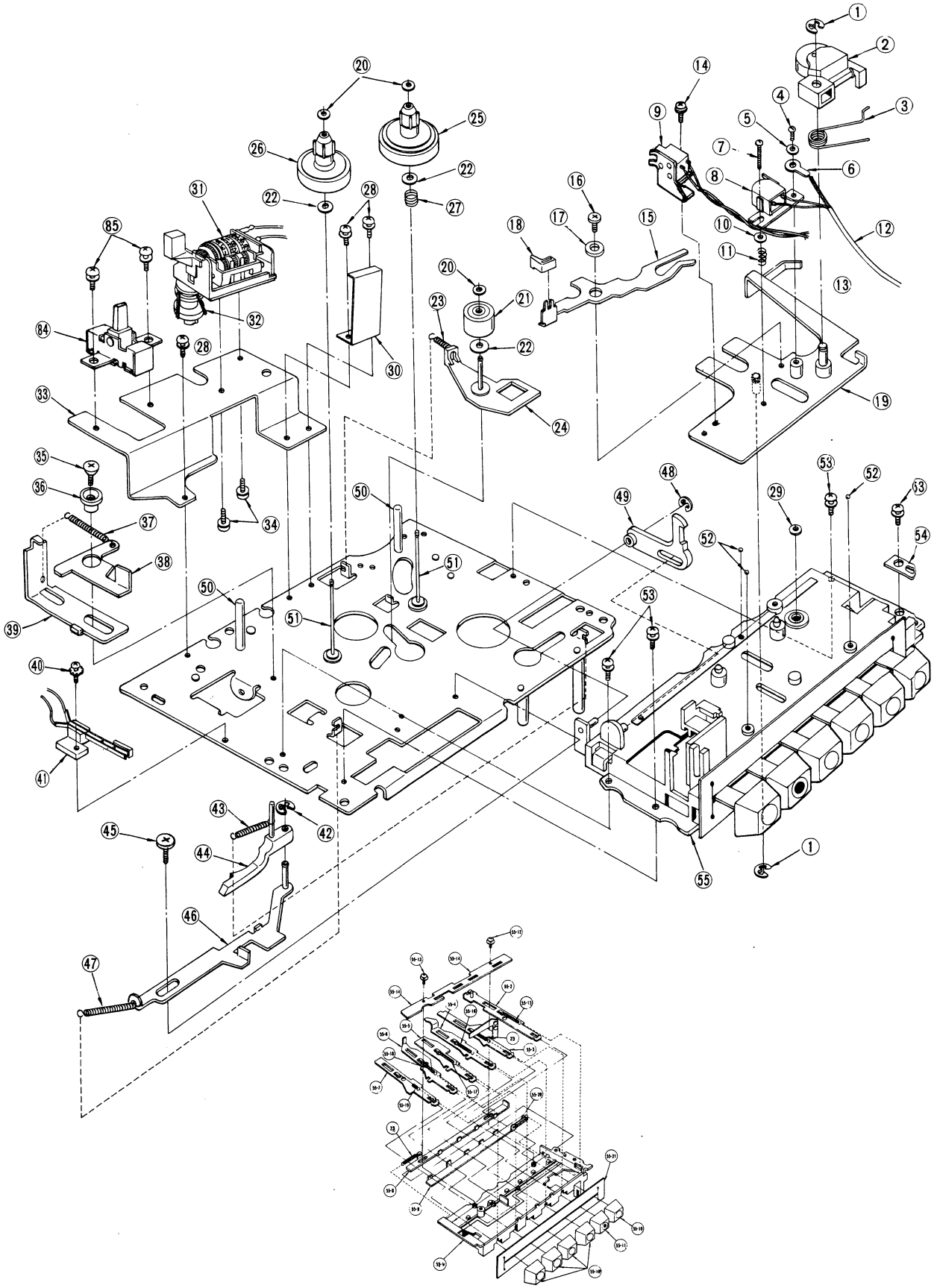




■ ACCESSORIES & PACKING PARTS LOCATIONS

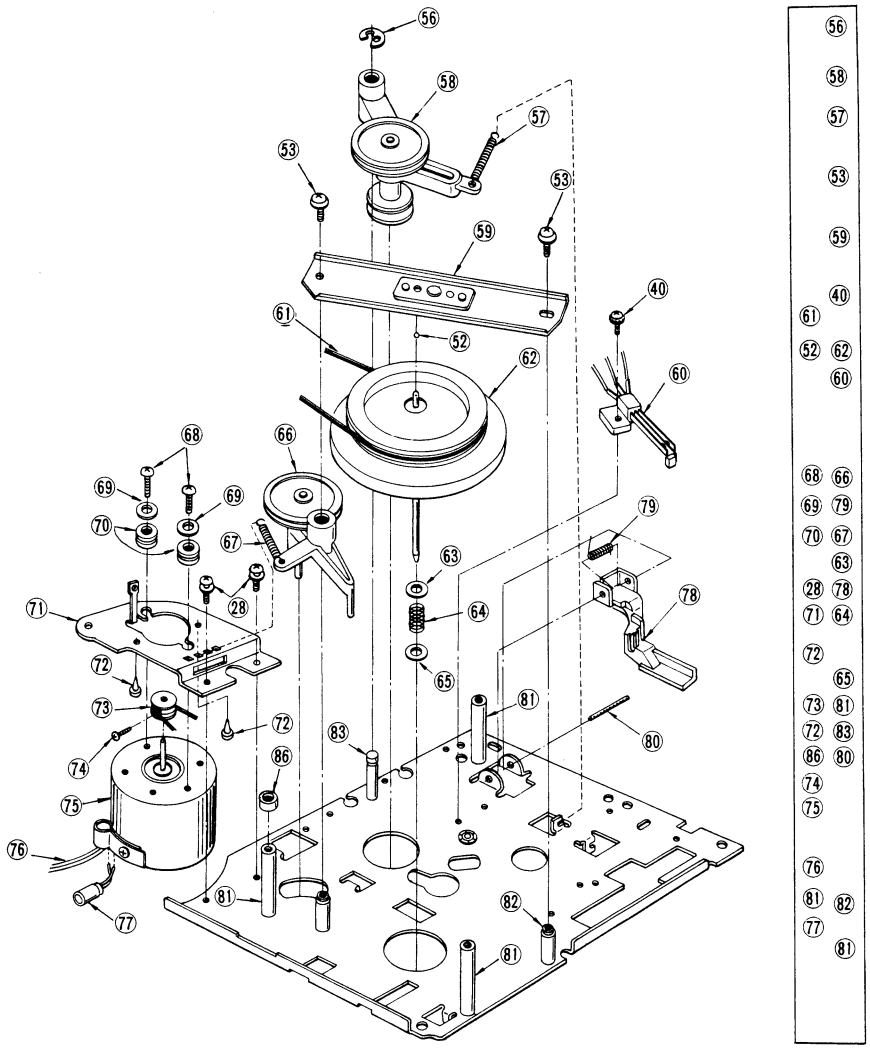


■ TAPE DECK PARTS LOCATIONS



(Top View)

■ TAPE DECK PARTS LOCATIONS



(Bottom View)

■ REPLACEMENT PARTS LIST

NOTES:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. X−Z rank: X rank parts will cover 80% of repair needs. X+Y rank parts will cover 95% of repair needs. Z rank parts are less necessary.
3. ✪ mark indicated 18 serrations parts.
4. SAFETY Indicates that only parts specified by the manufacturer be used for replacement in critical circuits.

Ref.No.	Part No.	Description	Per Set	Remarks
		TRANSISTORS AND DIODES		
TR1	2SC1674	FM RF Amplifier	1	X
TR2,3,4,5,6	2SC1359	FM Converter, FM/AM IF Amplifier, AM Converter	5	X
TR7,8	2SC900	PRE Amplifier	2	X
TR10,11,12,13	2SC945	Bias Oscillator, PRE Amplifier, AF Amplifier	4	X
TR9	2SC828	Meter Amplifier	1	X
TR14,15	2SC1568	Power Amplifier	2	X
D1	1S2687AA	FM AFC	1	X
D2,3,4,7,8,9,11	0A90	AM D.AGC, FM AGC, FM Rectifier, AM Detector & AGC, REC AGC, FM D.AGC	7	X
D5,6	2-0A90	FM Detector	1 pair	X
D10	1S1210M	Operation Compensator	1	X
		VARIATITE AND RECTIFIER		
Va1,2	EYV320D1R2J2	Variatite	2	X
Se	RVD10DC1	Rectifier SAFETY	1	X
		COILS AND TRANSFORMERS		
L2	RLD4N11	FM Detector Coil	1	X
L3	RLQY30S1	Choke Coil	1	Y
L4	RL04N27-0	FM Oscillator Coil	1	X

Ref.No.	Part No.	Description	Per Set	Remarks
L5,15	RLF6F11-0	LW, MW Antenna Coil	1	X
L6	RLA3M4	SW Antenna Coil	1	X
L7	RLQY50S5	Choke Coil	1	Y
L8	RL01M1	LW Oscillator Coil	1	X
L9	RL02M1	MW Oscillator Coil	1	X
L10	RL03M5	SW Oscillator Coil	1	X
L12	RLQZ1231-Z	Choke Coil	1	Y
L13	RL09C12-T	Bias Oscillator Coil	1	X
L14	RLQZ102-1-Q	Choke Coil	1	Y
T1	RLI4M101	FM 1st IF Transformer	1	X
T2,5	RLI4M301	FM 2nd, 3rd IF Transformer	2	X
T3	RLI2M203	AM 1st IF Transformer	1	X
T4	RLI2M205	AM 2nd IF Transformer	1	X
T6	RLI4M501	FM 4th IF Transformer (Primary)	1	X
T7	RLI4M502	FM 4th IF Transformer (Secondary)	1	X
T8	RLI2M402	AM 3rd IF Transformer	1	X
T9	RLT3F33-W	Input Transformer, P=1.4KΩ: S=1.4KΩ	1	X
T10	RLT2H29-W	Output Transformer, P=45Ω: S=8Ω	1	X ○
T11	RLT5K86-W	Power Transformer SAFETY	1	X
		VARIABLE RESISTORS		
R204,206	EVHW0AF15B54	50KΩ (B), Bass & Treble Control	2	X
R209	EVHW0AF15D54	50KΩ (D), Volume Control	1	X
R130	EVLT0AA00B52	500Ω (B), Bias Voltage Control	1	X
R123	EVLT0AA00B13	1KΩ (B), Meter Control	1	X
		VARIABLE CAPACITORS		
C39	ECV1YW02D70A	Fine Tuning Gang	1	X
C2,17,8,38	RCVJC4L	Tuning Gang, W/Trimmer (C3,12,18,36)	1	X ○
C13,14,30,33	RCV2T-16M	Trimmer	2	X

Ref.No.	Part No.	Description	Per Set	Remarks
COMPONENT COMBINATIONS				
Z1	RXABPF10801H	Coils & Capacitors	1	Y
Z2	EXA5DL04CC	330PF×3, 4.7KΩ×2	1	Y
Z3	RXAF103P22HD	0.01μF×2 SAFETY	1	Y
SPEAKER				
SP	EAS16P113S	16cm(6½") PM Dynamic Speaker, Imp. 8Ω	1	X ○
SWITCHES				
S1-1~S1-10	RSR99ZK-A	Band Selector Switch	1	ⓚ X ○
S2-1~S2-8	RSH65Z-F	Recording-Play Selector Switch	1	X
S3-1~S3-4	RSS103Z-M	Selector Switch(TAPE-SLEEP-RADIO ON)	1	X
S7,8,12	RST42ZS-P	Memory, Loudness, AC/BATT Switch	1	X
S9	RSR29-3	Voltage Selector Switch SAFETY	1	X
S10	RST40Z-H	Pause Switch	1	X
S13	RSS29A	Oscillator Switch	1	X
RESISTORS				
R104,111,116,133	ERD18SJ100	10Ω, ⅛Watt, ±5%, Carbon	4	Z
R129	ERD18SJ101	100Ω, ⅛Watt, ±5%, Carbon	1	Z
R141	ERD18SJ151	150Ω, ⅛Watt, ±5%, Carbon	1	Z
R140	ERD18SJ331	330Ω, ⅛Watt, ±5%, Carbon	1	Z
R101	ERD18SJ471	470Ω, ⅛Watt, ±5%, Carbon	1	Z
R146	ERD18SJ681	680Ω, ⅛Watt, ±5%, Carbon	1	Z
R137	ERD18SJ391	390Ω, ⅛Watt, ±5%, Carbon	1	Z
R103,109,142	ERD18SJ102	1KΩ, ⅛Watt, ±5%, Carbon	3	Z
R113	ERD18SJ222	2.2KΩ, ⅛Watt, ±5%, Carbon	1	Z
R117,124	ERD18SJ332	3.3KΩ, ⅛Watt, ±5%, Carbon	2	Z
R125	ERD18SJ472	4.7KΩ, ⅛Watt, ±5%, Carbon	1	Z
R108,110,114	ERD18SJ682	6.8KΩ, ⅛Watt, ±5%, Carbon	3	Z
R120,147	ERD18SJ103	10KΩ, ⅛Watt, ±5%, Carbon	2	Z
R119,132	ERD18SJ223	22KΩ, ⅛Watt, ±5%, Carbon	2	Z
R145,151	ERD18SJ473	47KΩ, ⅛Watt, ±5%, Carbon	2	Z
R115,136	ERD18SJ104	100KΩ, ⅛Watt, ±5%, Carbon	2	Z
R122	ERD18SJ224	220KΩ, ⅛Watt, ±5%, Carbon	1	Z
R106	ERD18SJ474	470KΩ, ⅛Watt, ±5%, Carbon	1	Z
R105,139	ERD18SJ684	680KΩ, ⅛Watt, ±5%, Carbon	2	Z
R14	ERD18VJ100	10Ω, ⅛Watt, ±5%, Carbon	1	Z
R28	ERD18VJ220	22Ω, ⅛Watt, ±5%, Carbon	1	Z
R18	ERD18VJ470	47Ω, ⅛Watt, ±5%, Carbon	1	Z
R36	ERD18VJ330	33Ω, ⅛Watt, ±5%, Carbon	1	Z
R22,203	ERD18VJ151	150Ω, ⅛Watt, ±5%, Carbon	2	Z
R29	ERD18VJ221	220Ω, ⅛Watt, ±5%, Carbon	1	Z
R26,27	ERD18VJ102	1KΩ, ⅛Watt, ±5%, Carbon	2	Z
R35,207	ERD18VJ152	1.5KΩ, ⅛Watt, ±5%, Carbon	2	Z
R138	ERD18VJ222	2.2KΩ, ⅛Watt, ±5%, Carbon	1	Z
R34	ERD18VJ392	3.9KΩ, ⅛Watt, ±5%, Carbon	1	Z
R205,208	ERD18VJ472	4.7KΩ, ⅛Watt, ±5%, Carbon	2	Z
R118,126,202	ERD18VJ682	6.8KΩ, ⅛Watt, ±5%, Carbon	3	Z
R30	ERD18VJ272	2.7KΩ, ⅛Watt, ±5%, Carbon	1	Z
R210,211	ERD18VJ103	10KΩ, ⅛Watt, ±5%, Carbon	2	Z
R5	ERD18VJ104	100KΩ, ⅛Watt, ±5%, Carbon	1	Z
R1,102	ERD18VJ474	470KΩ, ⅛Watt, ±5%, Carbon	2	Z
R201	ERD18VJ105	1MΩ, ⅛Watt, ±5%, Carbon	1	Z
R107	ERD18VJ274	270KΩ, ⅛Watt, ±5%, Carbon	1	Z
R15,154	ERD18TJ470	47Ω, ¼Watt, ±5%, Carbon	2	Z
R162	ERD18TJ151	150Ω, ¼Watt, ±5%, Carbon	1	Z
R131	ERD18TJ221	220Ω, ¼Watt, ±5%, Carbon	1	Z
R23	ERD18TJ102	1KΩ, ¼Watt, ±5%, Carbon	1	Z
R149	ERD18TJ222	2.2KΩ, ¼Watt, ±5%, Carbon	1	Z
R8	ERD18VJ122	1.2KΩ, ¼Watt, ±5%, Carbon	1	Z
R121	ERD18TJ103	10KΩ, ¼Watt, ±5%, Carbon	1	Z
R127,128,161	ERD18TJ223	22KΩ, ¼Watt, ±5%, Carbon	3	Z
R152	ERD18TJ473	47KΩ, ¼Watt, ±5%, Carbon	1	Z
R163	ERD18TJ224	220KΩ, ¼Watt, ±5%, Carbon	1	Z
R32	ERD18TJ474	470KΩ, ¼Watt, ±5%, Carbon	1	Z
R143	ERX1ANJR47U	0.47Ω, 1Watt, ±5%, Metal Oxide	1	Z
R112	ERD18SJ105	1MΩ, ⅛Watt, ±5%, Carbon	1	Z
R148	ERD18VJ681	680Ω, ⅛Watt, ±5%, Carbon	1	Z
R16,144	ERD18TJ101	100Ω, ¼Watt, ±5%, Carbon	2	Z
R156	ERD14VJ220	22Ω, ¼Watt, ±5%, Carbon	1	Z
CAPACITORS				
C65	ECCD1H1R5C	1.5PF, 50WV, ±0.25PF, Ceramic	1	Z
C64	ECCD1H030C	3PF, 50WV, ±0.25PF, Ceramic	1	Z
C5	ECCD1H040C	4PF, 50WV, ±0.25PF, Ceramic	1	Z
C66	ECCD1H020C	2PF, 50WV, ±0.25PF, Ceramic	1	Z
C46	ECCD1H050CC	5PF, 50WV, ±0.25PF, Ceramic	1	Z
C47	ECCW1H050CC	5PF, 50WV, ±0.25PF, Ceramic	1	Z
C6,19	ECCD1H100KC	10PF, 50WV, ±10%, Ceramic	2	Z
C20	ECCD1H120KC	12PF, 50WV, ±10%, Ceramic	1	Z
C4	ECCD1H150KC	15PF, 50WV, ±10%, Ceramic	1	Z
C15	ECCW1H100KC	10PF, 50WV, ±10%, Ceramic	1	Z
C9	ECCD1H390KC	39PF, 50WV, ±10%, Ceramic	1	Z
C11	ECCW1H560KC	56PF, 50WV, ±10%, Ceramic	1	Z ○
C29,107,161,163,209	ECCD1H101K	100PF, 50WV, ±10%, Ceramic	5	Z
C169	ECCD1H331K	330PF, 50WV, ±10%, Ceramic	1	Z
C28	ECMS05181J-H	180PF, 50WV, ±5%, Mica	1	Z
C32	ECQS1301JZ	300PF, 125WV, ±5%, Styrol	1	Z
C116	ECQS1331JZ	330PF, 125WV, ±5%, Styrol	1	Z
C42,111	ECQS05152JZ	1500PF, 50WV, ±5%, Styrol	2	Z
C35	ECQS05332KZ	3300PF, 50WV, ±10%, Ceramic	1	Z
C27,34,55	ECKE1H103MD	0.01μF, 50WV, ±20%, Ceramic	3	Z
C1,69	ECKE1H223PF	0.022μF, 50WV, $\pm^{100}_{0}$%, Ceramic	2	Z

Ref.No.	Part No.	Description	Per Set	Remarks
C7,23	ECKW1H102PF	0.001μF, 50WV, $\pm^{100}_{0}$%, Ceramic	2	Z
C10,50,56,60	ECKW1H102MD	0.001μF, 50WV, ±20%, Ceramic	4	Z
C21,22,41,51	ECKW1H103PF	0.01μF, 50WV, $\pm^{100}_{0}$%, Ceramic	4	Z
C24,26,43,44	ECKW1H103MD	0.01μF, 50WV, ±20%, Ceramic	4	Z
C40,49,31,68,52	ECKW1H223PF	0.022μF, 50WV, $\pm^{100}_{0}$%, Ceramic	5	Z
C164	ECKD2H103PF	0.01μF, 100WV, $\pm^{100}_{0}$%, Ceramic	1	Z
C16	ECKD1H102PF	0.001μF, 50WV, $\pm^{100}_{0}$%, Ceramic	1	Z
C115,139,208	ECQG05102MZ	0.001μF, 50WV, ±20%, Polyester	3	Z
C110,114,167	ECQG05222MZ	0.0022μF, 50WV, ±20%, Polyester	3	Z
C109	ECQG05472MZ	0.0047μF, 50WV, ±20%, Polyester	1	Z
C126,162	ECQG05682MZ	0.0068μF, 50WV, ±20%, Polyester	2	Z
C120,127,118,203	ECQG05103MZ	0.01μF, 50WV, ±20%, Polyester	4	Z
C54,108,204,166	ECQG05223MZ	0.022μF, 50WV, ±20%, Polyester	4	Z
C25,201	ECQG05333MZ	0.033μF, 50WV, ±20%, Polyester	2	Z
C146,119	ECQG05473MZ	0.047μF, 50WV, ±20%, Polyester	2	Z
C205	ECQG05683MZ	0.068μF, 50WV, ±20%, Polyester	1	Z
C59	ECQG05104MZ	0.1μF, 50WV, ±20%, Polyester	1	Z
C112	ECQG05103KZ	0.01μF, 50WV, ±10%, Polyester	1	Z
C202,207	ECAG16ER1-Y	0.1μF, 16WV, Electrolytic	2	Y
C101	ECAG16ER22-Y	0.22μF, 16WV, Electrolytic	1	Y
C103	ECAG16ER47-Y	0.47μF, 16WV, Electrolytic	1	Y
C105,122,137	ECEA50V1	1μF, 50WV, Electrolytic	3	Y
C140,144	ECEA25V3R3	3.3μF, 25WV, Electrolytic	2	Y
C106	ECEA16V10	10μF, 16WV, Electrolytic	1	Y
C117	ECEA10V47	47μF, 10WV, Electrolytic	1	Y
C104	ECEA6V47	47μF, 6.3WV, Electrolytic	1	Y
C61	ECEA50V1E	1μF, 50WV, Electrolytic	1	Y
C58	ECEA25V4R7E	4.7μF, 25WV, Electrolytic	1	Y
C48,63	ECEA16V10E	10μF, 16WV, Electrolytic	2	Y
C53	ECEA6V100E	100μF, 6.3WV, Electrolytic	1	Y
C57	ECEA6V220E	220μF, 6.3WV, Electrolytic	1	Y
C132	ECEA6V100	100μF, 6.3WV, Electrolytic	1	Y
C102,147	ECEA10V100	100μF, 10WV, Electrolytic	2	Y
C113,141	ECEA10V220	220μF, 10WV, Electrolytic	2	Y
C125	ECEA6V470	470μF, 6.3WV, Electrolytic	1	Y
C124,128,134	ECEA10V470	470μF, 10WV, Electrolytic	3	Y
C129	ECEB16V2200	2200μF, 16WV, Electrolytic	1	Y
C45	ECKD1H102MD	0.001μF, 50WV, ±20%, Ceramic	1	Z
C143	ECQG05224MZ	0.22μF, 50WV, ±20%, Polyester	1	Z
C145	ECEA16V47	47μF, 16WV, Electrolytic	1	Y
CABINET				
	RYMF5310LBXG	Cabinet Body Assembly	1	X ○
CA1	Not Available Order, RYMF5310LBXG	Cabinet Body Only	(1)	
CA2		Escutcheon	(1)	
CA3		Panel, Dial	(1)	
CA4		Panel, Counter	(1)	
CA5		Ornament	(1)	
		Cover, Reset Switch	(1)	
CA6		Baffle, Speaker	(1)	
CA7	RGB187Z	Badge, National Panasonic Mark	1	Z
CA8	RGX567Z	Ornament, Microphone	1	Z
CA9	RGK460Z	Indicating Plate, Tape Selector Button	1	Z
CA10	RGX648Y	Indicating Plate, 4 BAND Mark	1	Z
CA11	RGK565Z	Indicating Plate, MIC Mark	1	Z ○
CA12	RKX101Z	Handle, Cabinet	1	Y
CA13	RKX100ZS	Arm, Handle	2	Z ○
CA14	RNW823	Washer(Nylon), Handle	4	Z
CA15	XSB3+6BCS	Screw, Handle M'tg	4	Z
CA16	RHM58Z	Washer, Handle M'tg	2	Z
CA17	XYN3+F8S	Screw, Handle M'tg	2	Z
CA18	RKE9017Y	Cover with Indicating Plate, Cassette Box	1	Y
CA19	RUS181Z	Spring, Cassette Box	1	Z
	RXE3R5310BX	Bracket Assembly, Cassette Box(Right)	1	Z
CA20	Not Available Order, RXE3R5310BX	Bracket Only	(1)	
CA21		Shaft	(1)	
	RXE4R5310BX	Bracket Assembly, Cassette Box(Left)	1	Z
CA22	Not Available Order, RXE4R5310BX	Bracket Only	(1)	
CA23		Shaft	(1)	
CA24	XTN3+10B	Screw, Bracket M'tg	2	Z
	RYFF5310LBXG	Cabinet Cover Assembly	1	X ○
CA25	Not Available Order, RYFF5310LBXG	Cabinet Cover Only	(1)	
CA26		Tape, Battery	(1)	
CA27	RJS71Z	Terminal, EXT. ANT & EARTH	2	Z
CA28	RJC505Z	Spring, Battery ⊖ Side	2	Y
CA29	RJC111A	Terminal, Battery ⊕ Side	2	Y
CA30	XAN5T25	Neon Lamp, Arrestor	1	X
CA31	RGK489Z	Indicating Plate, AUX/MIC Mark	1	Z
CA32	RGT418Z	Name Plate	1	Z ○
CA33	RMA5063Z	Bracket(Plastic), Whip Antenna	1	Y
CA34	RKK90Z	Cover, Battery Compartment	1	X
CA35	XEARR252EASY	Whip Antenna	1	X ○
CA36	RMA115Z	Bracket(Metal), Whip Antenna	1	Z
CA37	WM054Z	Microphone	1	X
CA38	RHG940A	Rubber Cover, Microphone	1	Z
CA39	RSM2607Y-K	Meter	1	X
CA40	RMM17Z	Bracket, Meter	1	Z
CA41	RHG914-1	Rubber Cushion, Meter Bracket	1	Z
CA42	RHG807Z	Rubber Cushion, Meter	1	Z
CA43	RMS5B	Bracket, Speaker	4	Z
CA44	RBN283Y	Knob, Bass & Treble	2	X
CA45	RBN285ZK	Knob, Fine Tuning	1	ⓚ X
CA46	RBN284Y	Knob, Volume	1	ⓚ X
CA47	RBS83YK	Knob, Band Selector	1	ⓚ X ○
CA48	RBN250WK	Knob, Tuning	1	ⓚ X
CA49	RHR550A	Bracket(Plastic), AC Cord SAFETY	1	Z
CA50	XYN3+C6S	Screw, Whip Antenna M'tg	1	Z

Ref.No.	Part No.	Description	Per Set	Remarks
CA51	XTN3+16B	Screw, Bracket (AC Cord) M'tg	2	Z
CA52	XTN3+10B	Screw, Speaker & Meter M'tg	5	Z
CA53	XSB3+16BCS	Screw, Cabinet Cover M'tg	2	Z
CA54	XTB3+12BFC	Screw, Cabinet Cover M'tg	2	Z
		CHASSIS		
	RXE2R5310BX	Chassis Assembly	1	Z
CH1	(Not Available Order,	Chassis Only	(1)	
CH2	RXE2R5310BX)	Shaft, Pulley	(1)	
	RXE1R5310BX	Pointer Guide Assembly	1	Z
CH3	(Not Available Order,	Guide Only	(1)	
CH4	RXE1R5310BX)	Shaft, Pulley	(3)	
CH5	RJA29A-K	AC Cord, Power Source SAFETY	1	Y
CH6	RJJ92Z-C	Jack, Mic & Earphone	1	Y
CH7	RJJ59Z-C	Jack, DC IN 9V	1	Y
CH8	RJS76Z-H	Jack, AUX/MIC	1	Y
CH9	RMK79Z	Bracket, Jack	1	Z ○
CH10	RJR305-1	Lead Holder	1	Z
CH11	RUV323Y	Cover, Selector Switch	1	Z
	RUV118B	Cover, OSC. Switch	1	Z
CH12	RUV283A	Cover, Pause & Tape Selector Switch	2	Z
CH13	RUV330Z	Cover, AC/BATT, Memory & Loudness Switch	1	Z
CH14	RUV184Z	Cover, Voltage Selector Switch SAFETY	1	Z
CH15	RMA118Z	Bracket, Core Antenna	2	Z
CH16	RHG109	Rubber Cushion, Core Antenna	2	Z
	RMY82Z	Heat Sink, Transistor	1	Z ○
CH17	RDT1164ZK	Shaft, Tuning	1 ❹	Y
CH18	RDD410A	Drum, Dial	1	Y
CH19	RDR21-1	Pulley, Dial	3	Z
CH20	RDR20-3	Pulley, Dial	1	Z
CH21	RDS4060A	Spring, Dial	1	Y
CH22	RDZ05A	Cord, Dial (500m)	1 Roll	Y
CH23	RKD299Y	Scale, Dial	1	Z ○
CH24	RDP124Z	Pointer, Dial	1	Y
CH25	RUB80ZS	Lever (Aluminum), Selector Switch	1	Z
CH26	RUB81Z	Lever (Bakelite), Selector Switch	1	Z
CH27	RUB9010Y	Lever, Selector Switch	1	Z
	RUB83Z	Lever, Recording-Play Selector Switch	1	Z
	XSN2+6	Screw, Lever (Recording-Play Selector Switch) M'tg	1	Z
	XWA2B	Washer, Lever (Recording-Play Selector Switch) M'tg	1	Z
	XWE2×4BW	Washer, Lever (Recording-Play Selector Switch) M'tg	1	Z
	XYN3+F8S	Screw, Lever (Selector Switch) M'tg	1	Z
	RHE6010A	Washer, Lever (Selector Switch) M'tg	1	Z
CH28	RHR103A	Lead Cap, AC Cord SAFETY	1	Z
CH29	RHR700Z	Bracket (Bakelite), Band Selector Switch	1	Z
CH30	RNW150-2	Washer (Nylon), Pulley	4	Z
	RHG5A	Rubber Cushion, Tuning Gang	1	Z
CH31	XSN3+6S	Screw, Circuit Board M'tg	2	Z
	XSN26+6	Screw, Tuning Gang M'tg	2	Z
	XNS8	Nut, Tuning Shaft M'tg	1	Z
	XWV8	Washer, Tuning Shaft & Fine Tuning Gang M'tg	2	Z
CH32	XYN3+C8RS	Red Screw, Chassis M'tg	1	Z
CH33	XTN3+10BR	Red Screw, Chassis M'tg	5	Z
CH34	XTN3+12BR	Red Screw, Chassis M'tg	1	Z
CH35	XTW3+8ER	Red Screw, Chassis M'tg	1	Z
CH36	XYN26+C6	Screw, Drum M'tg	1	Z
CH37	XTW3+8L	Screw, Circuit Board M'tg	4	Z
CH38	XTW3+6L	Screw, Circuit Board M'tg	1	Z
CH39	XYN3+C8S	Screw, Tape Deck M'tg	2	Z
		ACCESSORIES		
A1	XEH1A1	Magnetic Earphone	1	Y
A2	RJN12Z	Cassette Tape	1	Y
A3	RJP39	Plug, EXT. Antenna	1	Y
A4	RJP39-1	Plug, EXT. Earth	1	Y
		PACKING		
P1	RPP175Z	Polyethylene Cover	1	Z ○
	RPN9134Z	Pad Complete	1	Z
P2	(Not Available Order,	Pad, Left Side	(1)	
P3	RPN9134Z)	Pad, Right Side	(1)	
P4	RPG1349Z	Packing Case	1	Z ○
P5	RQX5726Z	Instruction Book	1	Y ○
		TAPE DECK		
	RU-3076-1	Tape Deck Assembly	1	X ○
1	XUC3FK	E Ring, Pinch Roller & Head Plate M'tg	2	Z
2	QXL0664	Pinch Roller Assembly	1	X
3	QBT1632-1	Spring, Pinch Roller	1	Y
4	XSN2-4	Screw, Head M'tg	1	Z
5	XWA2B	Washer, Head M'tg	1	Z
6	QJT0039	Lug Terminal, Head Lead	1	Z
7	XSN2-10	Screw, Head M'tg	1	Z
8	QWY0117A	Head, R/P	1	X

Ref.No.	Part No.	Description	Per Set	Remarks
9	QWY2123	Head, Erase	1	X
10	XWG2BW	Washer, Head M'tg	2	Z
11	QBC1103A	Spring, Head	1	Y
12	QLSK2YBNC290	Lead Wire, R/P Head	1	Y
13	QLGK0164	Lead Wire, Head (Erase)	1	Z
14	XYN26+C4	Screw, Erase Head M'tg	1	Z
15	QML2381-2	Auto Stop Lever	1	Z
16	XSC26+4	Screw, Auto Stop Lever M'tg	1	Z
17	QMS1904	Spacer, Auto Stop	1	Z
18	QBJ1585	Auto Stop Detecting Piece	1	Z
19	QXKK0070A	Head Sliding Plate Assembly	1	Z
20	QWQ1124	Snap Washer, Idler Pulley & Reel Table M'tg	3	Z
21	QDP1467	Idler Pulley	1	Y
22	QWQT0005	Washer, Idler Pulley & Reel Table	3	Z
23	QBT1405M	Spring, Idler Lever & Button	3	Y
24	QXL0734	Idler Lever	1	Y
25	QXP0411-1	Supply Reel Table	1	Y
26	QXPK0028	Takeup Reel Table	1	Y
27	QBCT0005	Spring Back Tension	1	Y
28	XYN26+C6	Screw, Spring & Motor Bracket M'tg	5	Z
29	QWQT0003	Washer, Flywheel	1	Z
30	QBP1657	Spring, Cassette Pressure	1	Z
31	QDC0070	Tape Counter with Memory Switch	1	X
32	QDB0201	Belt, Counter	1	X
33	QMF1711-1	Bracket, Counter	1	Z ○
34	XYN3+C6	Screw, Tape Counter M'tg	2	Z
35	XSC26+8	Screw, Recording Lever M'tg	1	Z
36	QMB1086	Spacer, Recording Lever	1	Z
37	QBT1489M-1	Spring, Recording Lever	1	Y
38	QML2385	Recording Lever	1	Z
39	QML2384-2	Recording Lever	1	Z
40	XYN2+E5	Screw, Leaf Switch M'tg	2	Z
41	QSB0170A	Leaf Switch, Auto Stop	1	X
42	XUC25FK	E Ring, Auto Stop Nail M'tg	1	Z
43	QBT1645-3	Spring, Auto Stop Nail	1	Y
44	QML2440-2	Auto Stop Nail (Plastic)	1	Y
45	QHQ1168	Screw, Auto Stop Lever M'tg	1	Z
46	QXL0661-1	Auto Stop Lever	1	Z
47	QBT1641	Spring, Auto Stop Lever	1	Y
48	XUC2FK	E Ring, Eject Lock Lever M'tg	1	Z
49	QBJK0099	Eject Lock Lever (Plastic)	1	Y
50	(Not Available Order,	Shaft, Cassette Spacer	(2)	
51	RU-3076-1)	Shaft, Reel Table	(2)	
52	QDK1012	Steel Ball, Head Plate & Flywheel	4	Z
53	XYN26+F6	Screw, Button Mechanism & Lever M'tg	6	Z
54	QMF1731	Fixing Plate	1	Z
55	QXK1617	Button Mechanism Assembly	1	X
55-1		Base, Button Mechanism & Head Plate	(1)	
55-2		Eject Lever	(1)	
55-3		Recording Lever	(1)	
55-4		Rewind Lever	(1)	
55-5		Play Back Lever	(1)	
55-6	Not Available Order,	Fast Foward Lever	(1)	
55-7	QXK1617	Stop Lever	(1)	
55-8		Catch Lever	(1)	
55-9		Switch ON-OFF Lever	(1)	
55-10		Button, Eject, Rewind, Play, Fast Foward, Stop	(5)	
55-11		Button, Record	(1)	
55-12	XTC26+8R	Screw, Button Lever Stopper M'tg	1	Z
55-13	XTC26+10R	Screw, Button Lever Stopper M'tg	1	Z
55-14	QMF1637	Stopper, Button Lever	1	Z
55-15	QBT1475	Spring, Eject Lever	1	Y
55-16	QBT1776	Spring, Rewind Lever	1	Y
55-17	QBT1634-T	Spring, Play Lever	1	Y
55-18	QBTK0015-M	Spring, Fast Foward Lever	1	Y
55-19	QBT1653	Spring, Stop Lever	1	Y
55-20	QBT1652-1	Spring, Catch Lever	1	Y
55-21	QBJ2208	Cover, Button	1	Z
56	XUC4FK	E Ring, Connection Pulley M'tg	1	Z
57	QBTK0013	Spring, Connection Pulley	1	Y
58	QXL0836	Connection Pulley Assembly	1	Y
59	QXH0187	Flywheel Support Lever Assembly	1	Z
60	QSB0225	Leaf Switch, Auto	1	X
61	QDBK0009	Belt, Motor	1	X
62	QXF0082	Flywheel with Capstan	1	Y
63	QBJ3311	Washer, Flywheel	1	Z
64	QBC1210	Spring, Flywheel Thrust	1	Z
65	QBJ3310	Washer, Flywheel	1	Z
66	QXL0659-1	Play Back Connection Pulley Assembly	1	Y
67	QBTK0025	Spring, Play Back Connection Pulley	1	Y
68	XSN26+6	Screw, Motor M'tg	2	Z
69	XWG26B	Washer, Motor M'tg	2	Z
70	QXQ0068	Rubber, Motor M'tg	2	Z
71	QMAK0035	Bracket, Motor	1	Z
72	QBG1210	Rubber Cushion, Motor	2	Z
73	QDPK0018	Pulley, Motor	1	Z
74	XSN2+5	Screw, Motor Pulley M'tg	1	Z
75	MHI-5R9CXPRB	Motor with Governor	1	X ○
76	QER1310	Lead Wire, Motor	1	Y
77	ECEA10V100L	Electrolytic Capacitor	1	Y
78	QBJK0101	Eject Lever (Plastic)	1	Y
79	QBT1633	Spring, Eject Lever	1	Y
80	QWQ1157	Shaft, Eject Lever	1	Z
81	(Not Available Order,	Shaft, Tape Deck	(3)	
82	RU-3076-1	Shaft, Flywheel Support Lever	(1)	
83		Shaft, Connection Pulley	(1)	
84 (S11)	RST41Y-H	Tape Switch	1	X ○
85	XYN3+F6S	Screw, Switch M'tg	2	Z
86	RHG707Z	Rubber Cushion, Tape Deck	1	Z

RD Ⓕ
Printed in Japan